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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,269	11/14/2003	Vernon R. Brethour	28549-198910	7955
26694	7590	07/22/2005	EXAMINER	
VENABLE LLP P.O. BOX 34385 WASHINGTON, DC 20045-9998				DEPPE, BETSY LEE
		ART UNIT		PAPER NUMBER
		2637		

DATE MAILED: 07/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/712,269	BRETHOUR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Betsy L. Deppe	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 13 May 2005.
- 2a) This action is FINAL.                  2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 6-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 6-33 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 13 May 2005 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments, see pages 13-16, filed May 13, 2005, with respect to the rejections under 112, 1<sup>st</sup> paragraph and 2<sup>nd</sup> paragraph have been fully considered and are persuasive. These rejections have been withdrawn.
  
2. Applicant's arguments, see pages 16-18, filed May 13, 2005, with respect to the rejection(s) of claim(s) 6-11, 19-24, 32 and 33 under 35 USC 102(b) and claims 17,18, 30 and 31 under 35 USC 103(a) have been fully considered and are persuasive in light of the amended claims. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ono (US Patent No. 6,157,687 cited in the last Office Action) and Bi et al. (US Patent No. 6,515,977).

***Drawings***

3. The drawings were received on May 13, 2005. These drawings are not accepted because it does not comply with 37 CFR 1.84(c) which requires the drawing sheet to be identified as a replacement sheet. Appropriate correction is required.

***Claim Objections***

4. Claims 8-18 and 32 are objected to because of the following informalities:
  - a. in claims 8-18, the limitation recited in each of the dependent claims is not in a form consistent with a method claim, as recited in claims 6 and 7. For example, claim 8 should be as follows: "The method of claim 7 further comprising: excluding, during data demodulation, the samples corresponding to at least one of said plurality of reflections."
  - b. in claim 32, line 4, "impulse radio signal reflections" should be "reflections of the impulse radio signal" (see claim 32, line 2).

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claims 6-11, 19-24, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono (US Patent No. 6,157,687 cited in the Office Action mailed December 13, 2004) in view of Bi et al. (US Patent No. 6,515,977 B2).
7. With regard to claims 6 and 19, Ono teaches sampling circuitry (30) for sampling a plurality of impulse radio signal reflections (i.e. "paths") and figure of merit determination circuitry (31). (See the figure; column 3, line 35 - column 4, line 7 and

column 4, lines 46-60) However, Ono does not disclose that the figure of merit is dynamically determined.

Bi et al. teaches determining a figure of merit (i.e. the indication of signal quality) dynamically in the process of assigning and de-assigning fingers in a rake receiver. (See column 5, line 64 - column 6, line 62) Since there is no training period, it is implicit that the determination is dynamic. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Bi et al. to that of Ono in order to quickly adapt to changes in signal quality thereby improving data recovery.

8. With regard to claims 7 and 20, Ono in view of Bi et al. discloses the claimed invention since it is inherent/implicit that the output of the rake synthesizer is demodulated in order to recover the transmitted signal.

9. With regard to claims 8, 9, 21 and 22, Ono in view of Bi et al. discloses excluding samples based on at least one figure of merit (SIR). (See Ono, the abstract and column 5, lines 30-50)

10. With regard to claims 10, 11, 23 and 24, Ono in view of Bi et al. discloses updating the figure of merit and performing data demodulation computation based on an updated one of the at least one figure of merit. (See Ono, column 1, lines 53-58) It is inherent/implicit that the SIR is updated.

11. With regard to claim 32, Ono teaches receiving a plurality of impulse radio signal reflections (i.e. "paths"), sampling the plurality of impulse radio signal reflections (30), determining a plurality of figures of merit (SIR in 31), determining a best figure of merit

(i.e. "threshold") and determining whether to exclude one of said plurality of rake teeth. (See the figure, abstract, column 3, line 35 - column 4, line 7 and column 4, lines 46-60; column 5, lines 30-57) However, Ono does not disclose that the figure of merit is dynamically determined.

Bi et al. teaches determining a figure of merit (i.e. the indication of signal quality) dynamically in the process of assigning and de-assigning fingers in a rake receiver. (See column 5, line 64 - column 6, line 62) Since there is no training period, it is implicit that the determination is dynamic. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Bi et al. to that of Ono in order to quickly adapt to changes in signal quality thereby improving data recovery.

12. With regard to claim 33, Ono in view of Bi et al. discloses the claimed invention since it is inherent/implicit that the output of the rake synthesizer is demodulated in order to recover the transmitted signal.

13. Claims 12-16 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono in view of Bi et al. as applied to claims 6 and 19, respectively above, and further in view of Miura (US Patent No. 6,658,046 B1).

14. With regard to claims 12 and 25, Ono in view of Bi et al. disclose the claimed invention except for a time offset confined to a corresponding rake tooth placement zone. Miura discloses that each rake finger correlates the received signal with a despreading code with a timing offset value so that the offset values of all rake fingers

are different (i.e. the time offset is confined to "corresponding rake tooth placement zone"). (See column 1, lines 17-24) It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Miura with that of Ono in view of Bi et al. in order to quickly establish synchronization.

15. With regard to claims 13 and 26, Ono in view of Bi et al. and Miura disclose the claimed invention since the offset values are varied until correct timing is achieved and correct timing is achieved when a peak correlation value is detected.

16. With regard to claims 14 and 27, Ono in view of Bi et al. and Miura disclose the claimed invention. It is implicit/inherent that the time offset is placed to maximize the energy when the correct timing value for the rake finger is achieved. When there is synchronization, the correlation result is at a peak or a maximum.

17. With regard to claims 15 and 28, Ono in view of Bi et al. and Miura disclose the claimed invention including determining the time offset dynamically. (See Miura, column 1, lines 17-30)

18. With regard to claims 16 and 29, Ono in view of Bi et al. and Miura disclose the claimed invention including determining the time offsets for two or more of the rake teeth in parallel. (See Miura, column 1, lines 17-30)

19. Claims 17, 18, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono in view of Bi et al., as applied to claims 6 and 19, respectively, above, and further in view of Saints (US Patent No. 5,903,554 cited in the Office Action mailed December 13, 2004). Ono in view of Bi et al. discloses the claimed invention

Art Unit: 2637

except for determining a figure of merit based on variance or an approximation of the variance of the samples.

Figure 3 of Saints discloses calculating a noise value based on variance (step 110) and Figure 4 of Saints teaches estimating (i.e. "approximating") the noise value based on variance (step 152). (See column 4, lines 6-15 and column 5, line 66 - column 6, line 13). It would have been an obvious matter of design choice to one of ordinary skill in the art at the time the invention was made to use either of the noise calculations taught by Saints in the SIR estimator of Ono since the method of determining the noise does not affect the overall functionality or operation of Ono's rake receiving system. Whether a particular calculation method is used depends upon factors such as desired accuracy of the calculation versus power consumption/speed.

### ***Conclusion***

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

Art Unit: 2637

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Betsy L. Deppe whose telephone number is (571) 272-3054. The examiner can normally be reached on Monday, Tuesday and Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272 - 2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



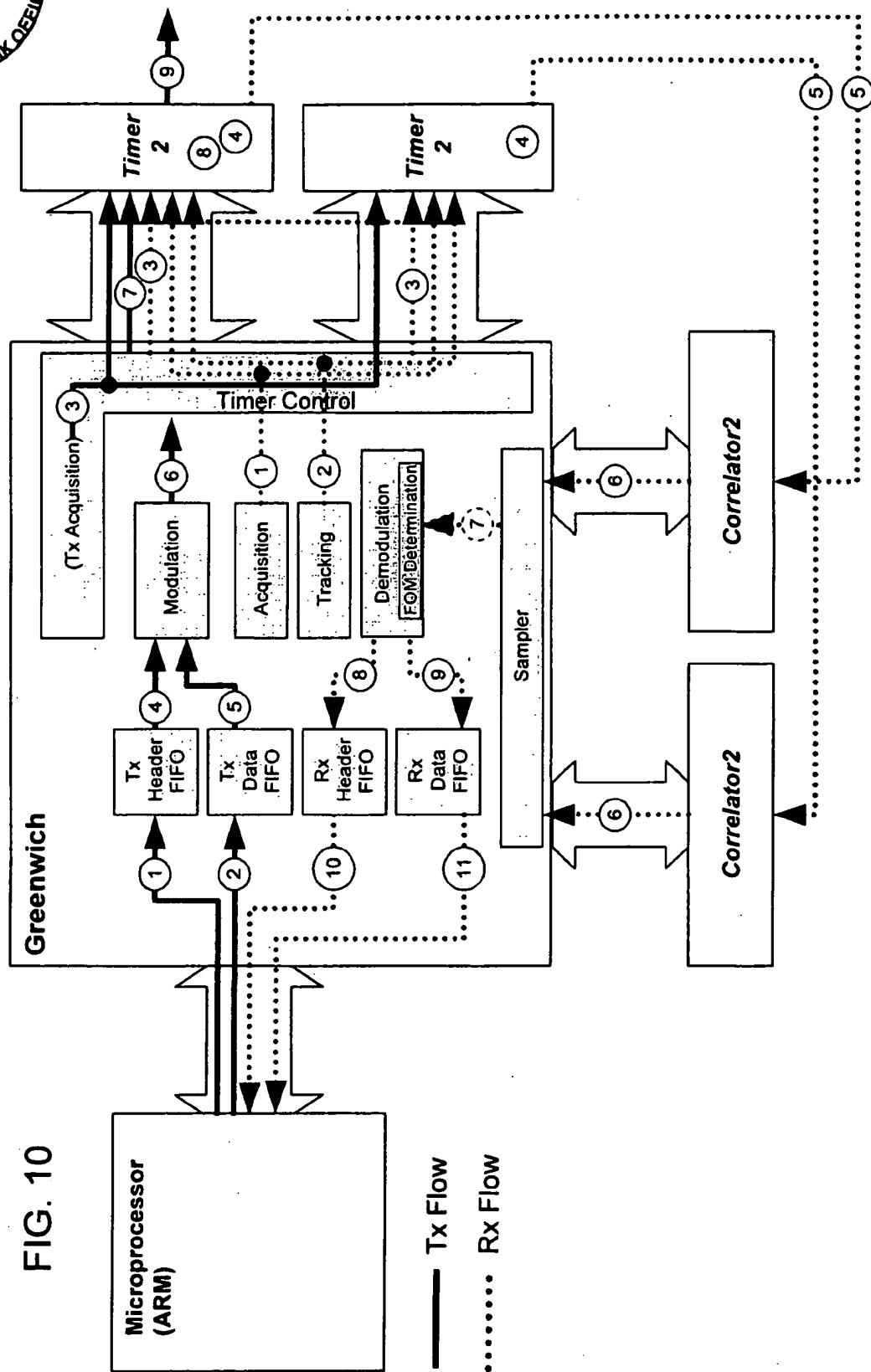
Betsy L. Deppe  
Primary Examiner  
Art Unit 2637

Not accepted

BD 7/19/05



FIG. 10



Application No: 10/712,269  
Amendment date: May 13, 2005  
Reply to Office Action of December 13, 2004

APPENDIX A